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IN THE

Supreme Court of the United States

OCTOBER TERM, 1977

No. 76-1701

TENNESSEE VALLEY AUTHORITY,
Petitioner,

versus

HIRAM G. HILL, JR., *et al.*,
Respondents.

On Petition for Writ of Certiorari to the
United States Court of Appeals
for the Sixth Circuit

MOTION BY SOUTHEASTERN LEGAL FOUNDATION FOR LEAVE TO FILE A BRIEF AMICUS CURIAE, AND BRIEF AMICUS CURIAE OF SOUTHEASTERN LEGAL FOUNDATION

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MOTION BY SOUTHEASTERN LEGAL FOUNDATION FOR LEAVE TO FILE A BRIEF AMICUS CURIAE

Southeastern Legal Foundation [hereinafter "Southeastern"] respectfully moves the Court for leave to file the attached brief as *amicus curiae* pursuant to this Court's Rule 42. The Solicitor General of the United States has refused to consent on behalf of Petitioner, Tennessee Valley Authority. Southeastern has requested consent of Respondents, but as of the time this motion was printed, neither a consent nor a denial had been received. Copies of the relevant correspondence have been filed with the Clerk of this Court.

Southeastern is a Georgia not-for-profit corporation organized for the purpose of advancing the broad public interest in adversary proceedings involving significant issues. Southeastern takes a special interest in questions of law of a national scope that have a direct effect on the southeastern region, namely North Carolina, South Carolina, Georgia, Tennessee, Kentucky, Florida, Alabama, Mississippi and Virginia.

Southeastern has an interest in this case for several reasons. The primary reason for Southeastern's desire to participate in this case as *amicus curiae* is its belief that the injunction, as a measure designed to protect the snail darter and its critical habitat, may have been futile from its inception. Recent evidence indicates that the very existence of the Tellico Dam structure, even without closure of its sluice gates, has made it impossible for young snail darters which are washed through the sluice gates to return above the dam to feed upon snails and to spawn new generations of snail darters. If that is correct, the snail darter may be doomed to extinction in the Little Tennessee River. To continue enjoining completion of the Tellico Project in such circumstances would be meaningless. If the snail darter is indeed doomed in the Little Tennessee River, its only hope of survival is transplantation to other habitats. Southeastern, in its attached brief, presents this new perspective in greater detail and discusses the possible courses of action this Court should consider.

Only a passing reference to this recently discovered evidence is made by Petitioner Tennessee Valley Authority in its Petition for Writ of Certiorari (at p. 10,

n.8.). Southeastern is unaware of any reference to this evidence in Respondents' pleadings. Accordingly, this issue may not be adequately presented to the Court by the parties and Southeastern's presentation should be helpful.

Additionally, the decision below, by requiring the issuance of an injunction halting all activities incident to Tennessee Valley Authority's Tellico Project, has the effect of frustrating the purposes for which the project was initiated: stimulation of new shoreline and industrial development; increasing area recreational opportunities, tourism and concomitant economic benefits; augmentation of existing hydroelectric power-generating capabilities; and improvement of flood control capabilities. Without the completion of the project, three Tennessee counties, comprising "an area characterized by underutilization of human resources and outmigration of young people . . .,"* will be deprived of these badly needed improvements.

Notwithstanding the future benefits to be gained by completing the project, the injunction has the effect of turning the investment of many millions of federal taxpayer dollars into an unrecoverable loss. It is submitted that the public has an interest in the manner in which federal money is expended and it is therefore appropriate for Southeastern to aid the Court in examining the issues.

The Solicitor General bases his refusal to consent to Southeastern's filing of a brief *amicus curiae* on the

* *Hearings Before a Subcomm. of the House Comm. on Appropriations*, 94th Cong., 2d Sess. 261 (1976).

grounds that Southeastern is not directly or indirectly affected by a decision in this case. Southeastern does not assert that it is directly affected by this decision *qua* organization. It is clear, however, that Southeastern is at least indirectly affected. As a public interest law firm, Southeastern is dedicated to economic social progress through the equitable administration of the law. It is funded by contributions from interested individuals and groups throughout the region it serves. However, the survival of endangered species, the development of federal projects and the waste of tax dollars are matters transcending the southeastern region, particularly where these interests directly conflict. In view of the national importance attached to the issues involved in this case, Southeastern submits that it may properly advance the interests of those directly affected as well as the interests of the general public.

Southeastern has been active as *amicus curiae* in connection with various matters in the public interest and has filed briefs as *amicus curiae* in a number of diverse cases, including: *Duke Power Company v. Carolina Environmental Study Group*, No. 77-262 (U.S. pending); *Natural Resources Defense Council v. SEC*, No. 77-1761 (D.C. Cir. pending); *Weber v. Kaiser Aluminum and Chemical Corp.*, 563 F.2d 216 (5th Cir 1977); and *Virginia Commonwealth University v. Cramer*, No. 76-1937 (4th Cir. pending). Unaffected by any direct financial or emotional involvement in this case, Southeastern's view will be of value to this Court as it reviews the decision below.

For these reasons, Southeastern respectfully urges this Court to grant its motion for leave to file the attached brief as *amicus curiae*.

Respectfully submitted,

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INDEX

	Page
INTEREST OF THE SOUTHEASTERN LEGAL FOUNDATION	1
SUMMARY OF ARGUMENT	2
ARGUMENT:	
I. NEW EVIDENCE SUGGESTS THAT THE LITTLE TENNESSEE RIVER IN ITS PRESENT STATE CANNOT SUSTAIN A VIABLE NATURAL POPULATION OF SNAIL DARTERS	3
II. IF THE SNAIL DARTER CANNOT SURVIVE IN THE LITTLE TENNESSEE RIVER, TVA HAS FULLY COMPLIED WITH THE ENDANGERED SPECIES ACT OF 1973	8
III. AN INJUNCTION SHOULD NOT BE GRANTED OR ALLOWED TO CONTINUE IN EFFECT WHICH WILL BE INEFFECTIVE IN ACHIEVING THE PURPOSE FOR WHICH IT IS DESIGNED	12
CONCLUSION	15
APPENDIX I — PETITION OF TVA TO DELIST THE LITTLE TENNESSEE RIVER AS CRITICAL HABITAT FOR THE SNAIL DARTER	1A
APPENDIX II — TVA SNAIL DARTER CONSERVATION PROGRAM, SITUATION ASSESSMENT, FEBRUARY 1977	9A
APPENDIX III — AFFIDAVIT OF RICHARD B. FITZ	21A

INDEX (Continued)

Page

APPENDIX IV – LETTER FROM CHARLES A. WAGNER, III, T.V.A., TO ALLEN HIRONS, SOUTHEASTERN LEGAL FOUNDATION 23A

TABLE OF CITATIONS

CASES:

Alameda Conservation Ass'n v. California, 437 F.2d 1087 (9th Cir. 1971), *cert. denied sub nom. Leslie Salt v. Alameda Conservation Ass'n*, 402 U.S. 908 (1971) 13

Barker Painting Co. v. Local No. 734, Brotherhood of Painters, Decorators and Paperhangers, 281 U.S. 462 (1930) 13

Calhoun v. Latimer, 377 U.S. 263 (1964) (*per curiam*) 15

Chrisman v. Sisters of St. Joseph of Peace, 506 F.2d 308 (9th Cir. 1974) 13

Fowler v. United States, 358 F.Supp. 638 (C.D.Cal. 1966) 13

Hill v. Tennessee Valley Authority, 419 F.Supp. 753 (E.D.Tenn. 1976), *rev'd*, 549 F.2d 1064 (6th Cir. 1977) ..... *passim*

Humble Oil Refining Co. v. Harang, 262 F.Supp. 39 (E.D.La. 1966) 13

Jordan v. School District of Erie, Pa., 548 F.2d 117 (3d Cir. 1977) 14

Koehring Co. v. National Automatic Tool Co., 257 F.Supp. 282 (S.D.Ind. 1966), *aff'd per curiam*, 385 F.2d 414 (7th Cir. 1967) 13

TABLE OF CITATIONS (Continued)

Page

McCleod v. General Electric Co., 385 U.S. 533 (1967) (*per curiam*) 15

National Wildlife Federation v. Coleman, 529 F.2d 359 (5th Cir. 1976), *cert. denied*, ___ U.S. ___ 11

Randolph v. Willis, 220 F.Supp. 355 (S.D.Cal. 1963) 14

Scranton v. Drew, 379 U.S. 40 (1964) (*per curiam*) 15

Sierra Club v. Froehlke, 392 F.Supp. 130 (E.D.Mo. 1975), *aff'd*, 534 F.2d 1289 (8th Cir. 1976) 11

System Federation, No. 91, Railway Employes v. Wright, 364 U.S. 642 (1961) 14

Theriault v. Smith, 523 F.2d 601 (5th Cir. 1975) 14

Todd v. Joint Apprenticeship Comm., 332 F.2d 243 (7th Cir. 1964), *cert. denied*, 380 U.S. 914 (1965) 13

United States v. Swift & Co., 286 U.S. 106 (1932) 14

Wirtz v. National Electric Co., 285 F.Supp. 30 (W.D.Okla. 1968), *aff'd sub nom. Shultz v. National Electric Co.*, 414 F.2d 1225 (10th Cir. 1969) 13

STATUTES:

The Endangered Species Act of 1973, 87 Stat. 884, 16 U.S.C.A. §1531 *et seq.* 9

Section 3(2), 87 Stat. 885, 16 U.S.C.A. §1532(2) 10

TABLE OF CITATIONS (Continued)

Page

Section 7, 87 Stat. 892, 16 U.S.C.A. §1536 8

FEDERAL REGULATIONS:

40 Fed.Reg. 47,505 (1975) 4

41 Fed.Reg. 13,926 (1976) 4

41 Fed.Reg. 53,143 (1976) 6-7,10

42 Fed.Reg. 13,075 (1977) 7

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BRIEF OF SOUTHEASTERN LEGAL FOUNDATION AS AMICUS CURIAE

INTEREST OF THE SOUTHEASTERN LEGAL FOUNDATION

The interest of the Southeastern Legal Foundation [hereinafter "Southeastern"] is set forth in its motion for leave to file this brief, which is bound together with this brief. Southeastern incorporates that statement herein, but considers it appropriate to briefly emphasize the reason for its presence in this case. As

the court of appeals succinctly stated, "[w]here a project is ongoing and substantial resources have already been expended, a conflict between national incentives to conserve living things and the pragmatic momentum to complete the project on schedule is most incisive." App. A, p. 11A.[1] Thus, the conflict boils down to the survival of a three-inch fish, the snail darter (*percina tanasi*), versus the survival of a multi-million dollar project designed to benefit the public interest. In this sense this case presents a conflict between two separate public interests. Southeastern believes that both are of great importance and that every effort should be made to reconcile these two interests so that both may survive.

As a public interest law firm, Southeastern is duty-bound to try to affect this reconciliation of public interests. Yet, recognizing that a choice between the survival of the snail darter and the survival of the Tellico Project ultimately may be necessary, Southeastern is vitally interested in providing assistance to this Court, for this case may serve as an important precedent for future cases involving similar conflicts.

SUMMARY OF ARGUMENT

Newly discovered evidence suggests that the Tellico Dam structure now in place already has had such an

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1 All references to App. A. pp. 1A-21A refer to the court of appeals' decision. All references to App.B. pp. 22A-44A refer to the district court's decision. These decisions are fully set forth in Appendices A and B respectively, of Petitioner Tennessee Valley Authority's Petition for Writ of Certiorari, and relevant citations in this brief are to those appendices. The district court opinion is reported as Hill v. Tennessee Valley Authority, 419 F.Supp. 753 (E.D.Tenn. 1976), and the court of appeals' decision is reported as Hill v. Tennessee Valley Authority, 549 F.2d 1064 (6th Cir. 1977).

effect on the snail darter's critical habitat that the snail darter cannot survive for long in the Little Tennessee River. This evidence has not been considered by the courts and, if it is valid, would indicate that continued maintenance of the injunction against completion of the Tellico Project, including impoundment of the river, would be meaningless. In such circumstances, the only hope of saving the snail darter would be to find new habitats.

In view of the importance of such evidence, if this Court does not decide this case upon grounds of statutory construction, as will be argued by the parties, it should consider remanding so the district court may determine whether removing the injunction is appropriate in view of the new evidence.

ARGUMENT

I.

New Evidence Suggests That The Little Tennessee River In Its Present State Cannot Sustain A Viable Natural Population Of Snail Darters.

It has become apparent since the court of appeals heard oral argument that new evidence has been uncovered which, if true, suggests that the snail darter may be a doomed fish if its future is tied to its survival in the Little Tennessee River. Studies conducted by expert biologists have produced evidence, which, if valid, leads to the inescapable and regrettable conclusion that the snail darter species will disappear unless it can successfully adapt to new habitats. Most of this

evidence apparently has been a result of TVA's Snail Darter Conservation Program begun in mid-1975 and conducted through TVA's Division of Forestry, Fisheries, and Wildlife Development. App. I, *infra*, p. 2A, *et seq.*[2]

Certain events in the chronology of this case are necessary to consider for an understanding of how the snail darter could remain threatened with extinction even with enforcement of the injunction.

The Tellico Project was authorized by Congress in 1966 and construction on the dam was begun in 1967. App. A., p. 2A. In August 1973, the snail darter was discovered by Dr. David A. Etnier in the Little Tennessee River. App. B, p. 25A. Over two years later, the snail darter was officially listed as an endangered species, effective November 10, 1975, 40 Fed.Reg. 47,505-06 (1975), and it was not until April 1, 1976, that a critical habitat for the snail darter on the Little Tennessee River was officially designated, effective May 3, 1976, 41 Fed.Reg. 13926-28 (1976). The stretch of river designated as critical habitat, measured upstream on the Little Tennessee River from the confluence of the Tennessee River and the Little Tennessee River, began at 0.5 miles upstream and ended at 17.0 miles upstream. *Id.*

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2 Appendix I, *infra*, sets forth TVA's "Petition to Delist the Little Tennessee River (LTRM 0.5 to 17) as Critical Habitat for the Snail Darter (*Percina Tanasi*)." Appendix II, *infra*, sets forth an attachment to that petition. Appendix III, *infra*, sets forth an affidavit verifying the contents of Appendix II, *infra*. Appendix IV, *infra*, sets forth a letter from TVA to Southeastern indicating that the petition to delist was mailed to the U. S. Fish and Wildlife Service on February 28, 1977. Southeastern has been informed that the petition to delist was denied a few days before this briefwas printed.

Meanwhile, the TVA was proceeding with construction of the Tellico Dam, and on August 17, 1975, cofferdams were completed across the Little Tennessee River. "From that time onward, the entire river flow was channeled through sluices in the lower portion of the concrete dam structure." App. I, *infra*, p. 2A. It is crucial to remember that this event occurred nearly three months before the snail darter was listed as an endangered species, approximately eight months before the critical habitat was designated for the snail darter, and almost six months before this lawsuit was filed on February 18, 1976. App. B., p. 26A. Nearly another full year passed until the court of appeals remanded the case on January 31, 1977, so that the district court could impose the injunction against the impoundment of the river.

From August 1975 to date, the Tellico Dam has diverted all the river waters through its sluice gates. Nothing has changed that salient fact. This is important because "recent evidence indicates that the very existence of the dam, even without closure of the sluice gates, has made it impossible for the fish to return through the sluices already in place to its spawning grounds above the dam." TVA's Petition for Writ of Certiorari, p. 10 n. 8.

The studies carried out as a part of TVA's Snail Darter Conservation Project reveal that a portion of the Little Tennessee River below the dam, in the Watts Bar Reservoir, and consequently outside the listed critical habitat area, serves as a nursery area for young snail darters. After being born, larval snail darters drift downstream from above the dam and are swept through sluice gates into the Watts Bar Reser-

voir. There they feed on zooplankton in the slower and warmer waters of the reservoir, and when they reach a more mature size they normally return to the faster moving waters upstream in the critical habitat zone. With the completed dam diverting the entire river flow through the sluice gates, evidence indicates that it is no longer possible for the snail darters to return to their critical habitat. App. I, *infra*, p. 6A.

The dam, by its very presence, prevents recruitment of juvenile snail darters into the main body of the snail darter population above the dam. *Id.* at 6A. Snail darters have been observed to live up to three and one-half years. App. II, *infra*, p. 13A. Under present conditions, the snail darters remaining above the dam are unable to maintain a steady population and are gradually dying off. *Id.* at 14A. A report by TVA's Division of Forestry, Fishing and Wildlife Development concludes that the natural Little Tennessee River population of snail darters living in the waters above the dam will cease to exist by the end of 1977. *Id.* at 16A.

Southeastern does not know when this possibility was first perceived by biologists studying the snail darter, but it was apparently no earlier than the middle to latter part of 1976, by which time the studies had been carried out for over two years. On November 10, 1976, biologists from the U. S. Fish and Wildlife Service, the Tennessee Wildlife Resources Agency, and TVA agreed that the evidence as of that date indicated that the obstruction caused by the Tellico Dam "created a potential threat to the continued existence of not only those [snail darters] congregated below [the dam] but to the Little Tennessee River population itself." 41

Fed.Reg. 53143 (1976). Acting promptly following this conclusion, TVA applied for a permit from the United States Department of the Interior to transplant snail darters found in the Little Tennessee River and in the Watts Bar Reservoir below the Tellico Dam, into the Holston River. *Id.*[3] Through the application, TVA indicated that transplantation was the only action that could be taken to avoid the extirpation of the snail darter in the Little Tennessee River, which, TVA asserted, would occur in the near future despite any measure that could be taken. *Id.*

The last event in the chronology of the critical actions in this case was TVA's filing on February 28, 1977, of a petition to delist the Little Tennessee River as critical habitat for the snail darter with the U. S. Fish and Wildlife Service, an agency within the U. S. Department of Interior. App. I, *infra*, p. 1A *et seq.* It is this petition, along with incorporated supporting information, which constitutes the primary source of the new evidence which Southeastern wishes to bring to the attention of this Court.[4] TVA asserted therein

3 TVA has transplanted snail darters to the Hiwassee River which provides a habitat similar to that of the Little Tennessee River. The district court indicated that evidence was introduced tending to show that chances of reproduction in the new environment were slight. App. B., p. 28A. According to TVA's petition to delist the Little Tennessee River as a critical habitat for the snail darter, successful spawning has occurred in the Hiwassee River during 1976 and "[r]ecent observations confirm that reproductive development is proceeding on schedule in the adult fish [which were transplanted] as well as those naturally reproduced in the Hiwassee." App. I, *infra*, p. 7A.

4 Southeastern does not know if this new evidence is valid, but asserts that if it is, it is extremely relevant to a final resolution of this case. In a related development, the U. S. Fish and Wildlife Service granted authority to its Regional Director in Atlanta, Georgia, to allow him to release snail darters now held at Morristown Fish Hatchery in Tennessee, into the Little Tennessee River above the Tellico Dam in order to achieve spawning in the spring of 1977. 42 Fed. Reg. 13075 (1977). Southeastern can only

that government biologists had agreed that the Little Tennessee River "in its present state cannot sustain a viable natural population of snail darters." App. I, *infra*, p. 7A. For this reason TVA sought to delist the Little Tennessee River as a critical habitat for the snail darter and sought permission to transplant the snail darters to the Holston River. If the snail darter has no future in the Little Tennessee River under present conditions, no reason would remain for maintaining the injunction and the Tellico Project could be completed.

II.

If The Snail Darter Cannot Survive In The Little Tennessee River, TVA Has Fully Complied With The Endangered Species Act Of 1973.

Section 7 of the Endangered Species Act of 1973, 87 Stat. 892, 16 U.S.C.A. §1536 [hereinafter "Section 7"] provides *inter alia*, that federal departments and agencies must:

> [U]tilize their authority in furtherance of the purposes of this Act, by carrying out programs for the conservation of endangered species and threatened species listed pursuant to section [4 of this Act] and by taking such action necessary to ensure that actions authorized, funded, or carried out by them do not jeopardize the continued existence of such

speculate as to the precise reason for this action, but it may have been a response to the recognized threat of extirpation of the fish in the river by the end of 1977. This action does not prevent larval snail darters from being swept through the dam's sluice gates into the Watts Bar Reservoir.

> endangered species and threatened species or result in the destruction or modification of habitat of such species which is determined by the Secretary, after consultation as appropriate with the affected States, to be critical.

The court of appeals held that the completion of the Tellico Project and the impoundment of waters behind the dam would violate Section 7. App. A., p. 10A. This decision must be read in light of the district court's finding that the impoundment of the reservoir would "result in the adverse modification, if not complete destruction of the snail darter's habitat." App. B., p. 26A. In arriving at its conclusion, the court of appeals held that a district court may not balance the survival of a species against the benefits to be gained from a federal project and the degree to which that project has been completed, in deciding whether to enjoin the project. App. A, pp. 11A, 12A. Even assuming, *arguendo*, that this is a correct interpretation of the law, Southeastern asserts that the court of appeals erred in finding a violation of the Endangered Species Act of 1973, 87 Stat. 884, 16 U.S.C.A. §1531 *et seq.* [hereinafter "the Act"], if the evidence discussed above in Part I of this brief is true.[5]

5 Southeastern expects TVA and the Respondents will fully discuss the Act and how it is to be construed. Southeastern recognizes that statutory construction arguments may be dispositive of this case, but offers this brief in order to present an alternate route of decision to the Court.

Section 7 requires TVA to carry out programs designed to conserve the snail darter and to take other action necessary to insure that it does nothing to jeopardize the continued existence of the snail darter or to destroy or modify the snail darter's critical habitat.

In compliance with these requirements, TVA embarked upon an extensive Snail Darter Conservation Program which involved observation and analysis of the snail darter. As a part of this program, TVA transplanted snail darters into the Hiwassee River in an attempt to find an alternate habitat for the fish. In addition, TVA planned to transplant snail darters to the Holston River, 41 Fed.Reg. 53143 (1976), but was denied permission to do so.

Section 3(2) of the Endangered Species Act of 1973, 87 Stat. 885, 16 U.S.C.A. §1532, defines "conservation", which is one of the duties of the TVA under Section 7, as

> . . . the use of all methods and procedures which are necessary to bring any endangered species or threatened species to the point at which the measures provided pursuant to this chapter are no longer necessary. Such methods and procedures include, but are not limited to, all activities associated with scientific resources management such as research, census, law enforcement, habitat acquisition and maintenance, propagation, live trapping, and transplantation . . . .

Measured by this standard, TVA, by embarking on its studies of the snail darter and by attempting to transplant the snail darter to alternate habitats, has complied with the requirements of Section 7 by carrying out snail darter conservation programs, *if the snail darter is doomed to extinction in the Little Tennessee River.*[6]

Furthermore, if the snail darter is doomed to extinction in the Little Tennessee River, the completion of the Tellico Project would not be action which itself would jeopardize the continued existence of the snail darter or result in the destruction or modification of its habitat, *in any meaningful way*. In this context, the only action which TVA could take to insure the continued existence of the snail darter would be to make every effort to transplant it to new habitats.[7]

At some future time, the parties to this litigation or the courts will have to admit, *assuming the new evi-*

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6 In the first case reported under the Act, it was argued that completion of the Meramec Park Lake Dam by the U. S. Army Corps of Engineers would jeopardize the existence of the Indiana Bat and modify or destroy its habitat. Sierra Club v. Froehlke, 392 F.Supp. 130 (E.D.Mo. 1975), *aff'd*, 534 F.2d 1289 (8th Cir. 1976). It was factually significant to the district court that the Sierra Club's own expert witness on Indiana Bats stated "that even if the Meramec Park Reservoir were not built, the Indiana Bats *would probably become extinct within fifteen to twenty years*." *Id.*, 392 F.Supp. at 144 (emphasis added).

7 In National Wildlife Federation v. Coleman, 529 F.2d 359 (5th Cir. 1976), *cert. denied*, ___ U.S. ___, an injunction was ordered to protect the Mississippi Sandhill Crane which was threatened by the completion of an Interstate Highway. The injunction was to last until the Secretary of the Interior approved certain modifications to the construction plans without which the Sandhill Crane could not have survived. In this sense, it was theoretically possible for the highway and the cranes to co-exist under certain conditions. To this extent, *Coleman* is factually distinguishable from this case, if the snail darter cannot survive in the Little Tennessee under present conditions.

dence is true, that Man has simply acted too late to save the snail darter's Little Tennessee River critical habitat. No one can be blamed for this failure. The project was begun well before the snail darter was discovered. By the time this litigation had even begun, the fate of the snail darter's critical habitat may well have already been sealed. The result would be no different had the U. S. Fish and Wildlife Service listed the portion of the Little Tennessee River below the dam in the Watts Bar Reservoir as part of the snail darter's critical habitat. If the Little Tennessee River habitat is doomed, it was simply out of ignorance that no one fully understood the life and ways of the snail darter before it was too late.

To continue to enjoin the completion of the Tellico Project under such circumstances would serve only to frustrate the beneficial purposes of the Tellico Project and to occasion the waste of many millions of dollars of federal funds already invested in the project. Instead of violating Section 7 of the Act, TVA may well have done everything possible to increase the chances that the snail darter will remain one of the life forms on this planet.

III.

An Injunction Should Not Be Granted Or Allowed To Continue In Effect Which Will Be Ineffective In Achieving The Purpose For Which It Is Designed.

"[N]o Federal court should ever attempt to decide moot questions. And this is particularly true where the relief sought is the extraordinary remedy of in-

junction." *Fowler v. United States*, 358 F.Supp. 638, 646 (C.D.Cal. 1966). Thus, an injunction should not be granted where its issuance will not serve any useful purpose. *Wirtz v. National Electric Co.*, 285 F.Supp. 30, 36 (W.D.Okla. 1968), *aff'd sub nom. Shultz v. National Electric Co.*, 414 F.2d 1225 (10th Cir. 1969); *Humble Oil Refining Co. v. Harang*, 262 F.Supp. 39, 43 (E.D.La. 1966).

Courts have applied these principles in a variety of factual situations, denying injunctions in each case. *See Barker Painting Co. v. Local No. 734, Brotherhood of Painters, Decorators and Paperhangers*, 281 U.S. 462 (1930) (injunction denied which sought to prevent activity on a construction job which was already completed); *Chrisman v. Sisters of St. Joseph of Peace*, 506 F.2d 308 (9th Cir. 1974) (where a woman sought injunctive relief against a hospital which refused to permit a sterilization operation, and injunctive relief was moot because sterilization was obtained elsewhere); *Alameda Conservation Ass'n v. California*, 437 F.2d 1087 (9th Cir.), *cert. denied sub nom. Leslie Salt v. Alameda Conservation Ass'n*, 402 U.S. 908 (1971) (where an exchange of land sought to be enjoined had already occurred); *Koehring Co. v. National Automatic Tool Co.*, 257 F.Supp. 282 (S.D.Ind. 1966), *aff'd per curiam*, 385 F.2d 414 (7th Cir. 1967) (where a prayer for return of items tortiously taken was moot because the material had been destroyed); *Todd v. Joint Apprenticeship Comm.*, 332 F.2d 243 (7th Cir. 1964), *cert. denied*, 380 U.S. 914 (1965) (efforts by black workers to obtain jobs on a federal project were moot when the work was completed before an injunction could be entered); *Fowler v. United States*, *supra* (where efforts to obtain police protection and an in-

junction against government interference at a meeting were moot when the court did not rule until after the meeting had taken place); and *Randolph v. Willis*, 220 F.Supp. 355 (S.D.Cal. 1963) (where it was too late to enjoin the publication of names of witnesses subpoenaed to appear before a congressional subcommittee, when the names had already been published in the news media).

If the district court had been aware of the possibility that a grant of an injunction aimed at protecting the snail darter and its critical habitat might have been totally ineffective to achieve that purpose, it would certainly have evaluated that possibility. It is doubtful that an injunction would have been ordered under such circumstances.

If this Court were to remand this action for a further examination of the evidence, including consideration of the possibilities discussed in this brief, the district court, if it deemed it proper, could modify or vacate its injunction. *See System Federation, No. 91, Railway Employes v. Wright*, 364 U.S. 642 (1961); *United States v. Swift & Co.*, 286 U.S. 106 (1932); *Jordan v. School District of Erie, Pa.*, 548 F.2d 117 (3d Cir. 1977); and *Theriault v. Smith*, 523 F.2d 601 (5th Cir. 1975). Even when an injunction is entered through the mechanism of a consent decree, it is always subject to adaptation and may be revoked or modified by a district court. *Swift*, supra, 286 U.S. at 115. (*Swift* involved a change in factual circumstances which served as a justification for modifying the injunction.). A similar factual situation may well exist in this case.

CONCLUSION

Southeastern respectfully urges that the newly discovered evidence discussed above suggests that it may not be appropriate to continue to enforce the injunction and raises doubts as to whether any violation of the Endangered Species Act of 1973 has occurred.

Under these circumstances, the Court should vacate the injunction and remand the case to the district court so that it may conduct further evidentiary hearings. *See McCleod v. General Electric Co.*, 385 U.S. 533 (1967) (*per curiam*); *Scranton v. Drew*, 379 U.S. 40 (1964) (*per curiam*); and *Calhoun v. Latimer*, 377 U.S. 264 (1964) (*per curiam*).

Respectfully submitted,

BEN B. BLACKBURN
WAYNE T. ELLIOTT
ALLEN R. HIRONS

Attorneys for Southeastern Legal Foundation, amicus curiae

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Suite 950
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APPENDIX I

PETITION TO DELIST THE LITTLE TENNESSEE RIVER (LTRM 0.5 TO 17) AS CRITICAL HABITAT FOR THE SNAIL DARTER (PERCINA TANASI)

Pursuant to 5 U.S.C. § 553(e) (1970) and 16 U.S.C. §§ 1533, 1536 (Supp. V, 1975), and based on the information contained in this petition and the supporting affidavit, the Tennessee Valley Authority (TVA), the federal agency constructing the Tellico project on the Little Tennessee River, respectfully petitions the Secretary of the Interior to amend 50 C.F.R. § 17.81 by delisting Little Tennessee River miles 0.5 to 17 as critical habitat for the snail darter, *Percina tanasi*, on the ground that the designated area does not satisfy the basic biological criteria (40 Fed. Reg. 17764-65 (1975)) necessary to sustain a viable, natural population of snail darters.

Background

The Tellico project was authorized by Congress on October 15, 1966, as a multipurpose water resource and regional development project. Construction on the dam began on March 7, 1967. On August 10, 1967, the installation of two cofferdams across the left channel of the Little Tennessee River (LTRM 0.5) was completed, diverting the river flow around Bussell Island through the right channel of the river. The concrete structure was completed on October 18, 1968, and efforts were then concentrated on road and utility relocations, land clearing, archaeological salvage, relocation of families, and work on the earthfill portion of the dam. The snail darter was discovered in August 1973 when the Tellico project was over half completed.

On August 17, 1975, about three months before the snail darter was listed as endangered, cofferdams were completed across the remaining or right channel of the river, allowing foundation preparation work for the earthfill portion of the dam to proceed in the riverbed area. From that time onward, the entire river flow was channeled through the sluices in the lower portion of the concrete dam structure. As will be discussed in more detail *infra*, it is now clear that the closing of the river channels and erection of the dam have permanently separated the Little Tennessee River snail darter population from its nursery area in Watts Bar Reservoir (below Tellico Dam), effectively ending any recruitment to the Little Tennessee River population since August 17, 1975.

The snail darter (*Percina tanasi*) was listed by the U.S. Fish and Wildlife Service (Service) as an endangered species effective November 10, 1975 (40 Fed. Reg. 47505-06 (1975)), when the project was about 70 percent complete. The listing stated that the snail darter "is known only from portions of the gravel shoals in the main channel of the Little Tennessee River between River Miles 4 and 17" (40 Fed. Reg. at 47506). Two months later the Service published a proposed critical habitat determination for the snail darter extending from river mile 0.5 to river mile 17 of the Little Tennessee River (40 Fed. Reg. 58308-12 (1975)). The proposal stated that this section of the river was "the only known existing habitat of the snail darter."

Prior to the proposed listing, TVA had on several occasions informed the Service of snail darter finds out-

side the proposed critical habitat area. Beginning in the fall of 1975, a series of letters and reports were sent by TVA to the Service informing them that the fish had been found further downstream, first at LTRM 0.5 (letter dated Sept. 15, 1975, from Dr. Thomas H. Ripley, TVA, to Ronald Skoog, Office of Endangered Species), then downstream from Tellico Dam in the Watts Bar Reservoir in 27 feet of water (Mile O) (letter dated Oct. 17, 1975, from Ripley to Skoog) and also immediately below the dam (LTRM 0.2) in deep water (letter dated Dec. 11, 1975, from Ripley to Skoog). Later biweekly progress reports under TVA's conservation program documented the discovery of the fish in the mainstream of the Tennessee River (Watts Bar Reservoir) 4 and 10 miles downstream from the confluence of the Little Tennessee and Tennessee Rivers and, ultimately, as far downstream as Chickamauga Reservoir.

TVA also commented on the proposed critical habitat determination, recommending that a final determination not be adopted until additional scientific information, being gathered by TVA's biologists and consultants, was considered. TVA pointed out that in its view the "significant numbers" of snail darters found below Tellico Dam cast doubt on the assumption that all of the fish's "vital needs" are met in the proposed 16.5-mile section of the Little Tennessee River. Specifically, the comments observed that:

> This discovery is of special importance because the snail darter had never been observed in this area nor in comparable depths [20 to 30 feet of water] prior to these discoveries. Since the specimens observed below the dam were nearly all juvenile forms in con-

centrations never previously observed, it is possible that the area below the dam serves as a nursery until food habits or cover requirements change. The distinct possibility that this area is an important nursery for juvenile snail darters is further enhanced by the fact that, thus far, we have been unable to locate any other concentrations of young fish within the lower Little Tennessee River. Although not likely, it is also possible that these fish are the product of spawning activities either in the immediate area or in the Tennessee River itself [letter dated Feb. 19, 1976, from TVA General Manager Lynn Seeber to Director of the Fish and Wildlife Service at 2-3].

Notwithstanding TVA's comments, the Service, on April 1, 1976, officially designated LTRM 0.5 to 17 as critical habitat for the snail darter, effective May 3, 1976 (41 Fed. Reg. 13926-28 (1976)).

Facts Supporting TVA's Petition To Delist the Designated Critical Habitat

TVA has now brought additional information to the Service's attention which clearly establishes that the officially designated critical habitat of the snail darter does not include all of the biological/habitat requirements necessary to sustain the complete life cycle of the fish and that access to a broader area containing these requirements is no longer available to the Little Tennessee River population. These essential biological needs, however, are being provided in the Hiwassee River, and also appear to be available in the Holston River in the area below Cherokee Dam.

The Service has administratively defined the requirements for determining critical habitat as follows:

> The following vital needs are relevant in determining "critical habitat" for a given species:
>
> (1) Space for normal growth, movements, or territorial behavior;
>
> (2) Nutritional requirements, such as food, water, minerals;
>
> (3) Sites for breeding, reproduction, or rearing of offspring;
>
> (4) Cover or shelter; or
>
> (5) Other biological, physical, or behavioral requirements [40 Fed. Reg. 17764 (1975)].

These basic criteria, with slight changes, have recently been published as part of a proposed rulemaking (50 C.F.R. § 17.94) for the determination of critical habitat (42 Fed. Reg. 4872 (1977)). It is TVA's position that criteria numbers 1, 3, and 5 are not satisfied by the designated critical habitat for the snail darter (LTRM 0.5 to 17).

As detailed in the attached affidavit of TVA biologist Richard B. Fitz, incorporating the report entitled "Population Age Structure and Distribution — Little Tennessee and Hiwassee Rivers," TVA's continued study of the snail darter's life history has established that:

1. The population of snail darters in the Little Tennessee River has declined drastically in the last

two years. The majority of the snail darters now remaining in the Little Tennessee River are in the final year of their natural 3+ year lifespan.

2. The complete snail darter reproduction cycle does not occur in the Little Tennessee River (LTRM 0.5 to 17), and this portion of the river used by the adult fish is no longer available to the young fish in the nursery area of Watts Bar Reservoir with the dam in place. TVA biologists studying the darter have concluded that after spawning, larval snail darters swim up into the water column and drift downstream in the current to deeper, slow-moving water of Watts Bar Reservoir. There the larval darters feed on the zooplankton that abounds in the slower, warmer water, until they reach a more mature size and then would normally return to the swifter current habitat where snails and other macroinvertebrate food forms are more available. As previously indicated, the left channel of the river was closed by cofferdam in August 1967 and the right channel was closed in August 1975, diverting the entire riverflow through the sluice gates in the main dam, thus preventing recruitment of juvenile snail darters to the Little Tennessee River population.

3. Substantial numbers (>1,000) of young snail darters have been found in the Watts Bar embayment of the Little Tennessee River. Over 590 of these fish have been captured in cooperation with the Service and the Tennessee Wildlife Resources Agency and held in the State's Morristown fish hatchery to be transplanted. Several hundred juvenile darters still remained in the area in January 1977 when capture efforts were halted due to weather conditions.

4. There was virtually no recruitment of young darters to the Little Tennessee River population in 1976 and only limited recruitment in 1975.

5. Successful spawning occurred in the Hiwassee River in 1976, and there has been recruitment to the transplanted population. Recent observations confirm that reproductive development is proceeding on schedule in the adult fish as well as in those naturally reproduced in the Hiwassee.

In sum, TVA's life history studies establish that the Little Tennessee River miles 0.5 to 17, designated as critical habitat, do not supply the constituent elements "necessary to the normal needs or survival" of the snail darter (Notice on Critical Habitat Areas, 40 Fed. Reg. 17764-65 (1975)) and that additional areas which could supply those needs are no longer available to the species in the Little Tennessee River. Indeed, there is now general agreement among TVA biologists, Service biologists, TWRA biologists, and Dr. David Etnier, the discoverer of the snail darter, that the Little Tennessee River in its present state cannot sustain a viable, natural population of snail darters. Observations of the Hiwassee River transplanted population confirm TVA's analysis of the snail darter reproductive cycle and establish that the vital needs of the species are being met in the Hiwassee River.

As detailed in the attached report, the Holston River below Cherokee Dam also contains suitable habitat for the snail darter. This site was selected by TVA, the Service, and the State of Tennessee during consultation in September 1976, in connection with TVA's re-

quest for a permit to transplant additional snail darters from the Little Tennessee River and below Tellico Dam to establish a second population of darters in a viable habitat.

Prayer for Relief

In light of the foregoing, TVA respectfully requests the Secretary, through the Service, to:

1. Promptly commence a review of the critical habitat determination for the snail darter (*Percina tanasi*), published in the *Federal Register* on April 1, 1976 (41 Fed. Reg. 13926-28) and codified as 50 C.F.R. § 17.81, designating Little Tennessee River miles 0.5 to 17; and issue a notice of proposed rulemaking in the *Federal Register* to delist or remove Little Tennessee River miles 0.5 to 17 as the critical habitat for the snail darter on the grounds that the designated area does not satisfy the basic biological criteria necessary to sustain a viable, natural population of snail darters, as set out in 40 Fed. Reg. 17764-65 (1975) and in the proposed rulemaking for section 17.94 (42 Fed. Reg. 4872 (1977));

2. Issue final rulemaking in the *Federal Register* amending 50 C.F.R. § 17.81 by delisting or removing Little Tennessee River miles 0.5 to 17 as the critical habitat for the snail darter; and

3. Issue a permit under section 10 of the Endangered Species Act to the Tennessee Valley Authority, as applied for by TVA on November 12, 1976 (*see* 41 Fed. Reg. 53142 (1976)), and as supplemented by the application submitted herewith.

to transplant snail darters from the Little Tennessee River and the Watts Bar Reservoir below Tellico Dam into the Holston River below Cherokee Dam.

We ask that you act as promptly as possible upon our request. We will gladly furnish any additional information you consider necessary or helpful.

Respectfully submitted,

/s/ LYNN SEEBER
Lynn Seeber, General Manager
Tennessee Valley Authority
Knoxville, Tennessee 37902

APPENDIX II

TVA SNAIL DARTER CONSERVATION PROGRAM

SITUATION ASSESSMENT

Population Age Structure and Distribution —
Little Tennessee and Hiwassee Rivers

Prepared By Division of
Forestry, Fisheries, and Wildlife Development

February 1977

TVA has been conducting a comprehensive snail darter conservation program since the summer of

1975. As a part of that program, a great deal of information on the life history of the snail darter (*Percina tanasi*) both in the Little Tennessee and Hiwassee Rivers has been gathered. Beginning in October 1975, specific studies were undertaken to determine population age structure and relative strength as well as spatial distribution related to age class.

This report describes the snail darter population analysis techniques used and the general conclusions reached about the Little Tennessee River and Hiwassee River populations. In summary, the studies established that:

(1) The population of snail darters in the Little Tennessee River has declined drastically in the last two years.

(2) Substantial numbers (>1,000) of young darters have been found in the Watts Bar embayment of the Little Tennessee River.

(3) The complete snail darter reproduction cycle does not occur in the Little Tennessee River LTRM 0.5 to 17, and this area is no longer accessible to the young snail darters which normally return to the river from Watts Bar Reservoir to complete their life cycle.

(4) There has been virtually no recruitment of young darters to the Little Tennessee River population in 1976 and only limited recruitment in 1975.

(5) Successful spawning has occurred in the Hiwassee River and there has been recruitment to the transplanted population. Recent observations confirm that reproductive development is proceeding on schedule in the transplanted adult fish as well as in those fish naturally reproduced in the Hiwassee River.

Based on these findings, we have concluded that the snail darter population in the Little Tennessee River (LTRM 0.5 to 17) cannot survive even if the Tellico Dam is not closed or the river impounded because the designated "critical habitat" does not include all the biological/habitat requirements necessary to sustain the complete life cycle of the darter, and access to a broader area containing these requirements is no longer available to the population. These essential biological needs are being provided in the Hiwassee River, and, we believe, exist in the Holston River site (below Cherokee Dam).

Background: Methodology and Population Dynamics

The need to monitor changes occurring relative to the size of the Little Tennessee River population was recognized during the development of the conservation plan. A method of measuring relative abundance, which is a function of population size and describes changes occurring in standing stocks, was developed to assess any fluctuations. Relative abundance measurements have been taken in both rivers, three times per season since January 1976. These activities were conducted at six specific sites in the Little Tennessee River and three in the Hiwassee River.

To gain further insight into the dynamics of population size, age and growth data were taken from 741 fish over the year and analyzed using the Harding length frequency method. This information allowed evaluation of the population age structure and enabled us to correlate fluctuations in relative abundance with fluctuations in year class strength.

We recognized that apparent fluctuations in year class strength can result from differences in spatial distribution as influenced by differing habitat requirements. For this reason and the need for general species distribution information, investigations were conducted throughout and beyond the expected range in both the Little Tennessee and Hiwassee Rivers.

Based on information gathered during these activities, certain relevant conclusions can be drawn concerning the life history of the species.

(1) The snail darter spawns in the late winter through early spring. After a period of incubation the eggs hatch and the larvae swim up into the water column and drift downstream in the current to deeper, slow-moving water. The slow current and resultant warmer temperatures promote zooplankton production which is utilized by the post-larval darters as a food source. Upon reaching 35 to 45 mm in length, the fish convert to snails and other macroinvertebrates in their food habits and of necessity move back into the flowing water habitat which produces more of these organisms.

(2) The expected pattern of population fluctuation over a year's period would find the lowest levels occurring in late summer followed by an increase to peak levels in late winter or early spring and then a decline to the late summer population. This theorized norm results from a gradual mortality of the 3+ year class (age analysis shows that individual snail darters do not live beyond 3-1/2 years) following spawning followed by recruitment of juveniles returning in the fall from the deep, slow-moving pools.

Findings

The studies indicate that, while fluctuations in snail darter population size occur, the *total* population of snail darters in the Little Tennessee River has sharply declined since our population studies began. There has been virtually no recruitment of young snail darters to the population in 1975 and 1976; whereas, in the Hiwassee, recruitment of juveniles, observed both downstream in the slower pool areas (outside established sampling stations) and in the lower transplant areas, is expected to provide a basis for population increase.

During the course of the investigations on the Little Tennessee River population, length measurements were taken from 741 snail darters to determine the structure of the population with regard to age group representation. Initially, during the fall of 1975, three age groups were represented: young-of-the-year (1975 year class), 1+ (1974 year class), and 2+ (1973 year class). The majority fell in the 1+ group and only one individual was collected from the young-of-the-year or 0+ age group (Figure 1).

Over the next 12 months and following the 1976 spawning season, the 1973 year class completely dis-

appeared from the population. Further, no additional specimens of the 1975 year class were collected (Figures 2 and 3). From this information, coupled with limited age data from scale analysis, we concluded that individual snail darters do not live beyond approximately 3-1/2 years. Since only one specimen of the 1975 year class was sampled, it appeared that they comprised an insignificant percentage of the total population in the Little Tennessee River, and their subsequent disappearance from the samples could reasonably be attributed to natural mortality of an already limited stock.

In the Hiwassee, population age structure was known from the start as all fish transplanted were measured prior to release in late 1975 and early 1976. Specifically, 14 percent were of the 1973 year class (2+ age group) with the remainder represented by the 1974 year class (1+ age group).

Concurrently with the population age structure investigation, determinations of the species spatial distribution were made, both to document its range and to identify any variations in distribution among age groups. During these investigations we located the large numbers of young snail darters (1975 year class and subsequently 1976 year class) congregated in Watts Bar Reservoir below Tellico Dam. This congregation has been observed during every investigation since December 1975. The situation, from the outset, indicated to us that the young fish below Tellico Dam represented those fish which were absent in the Little Tennessee River above the dam. This assessment was further strengthened by the discovery in late summer of 1976 of young-of-the-year (1976 year class)

snail darters in the deep, slow-moving areas of the Hiwassee River below the shoals that had received the transplants. Discovery of reproduction was expected since the transplanted adults had been observed to be in spawning condition during the winter of 1975-76 and subsequent examination revealed them to have spent their reproductive products. These young fish produced by the transplanted adults now have attained (February 1977) sexual maturity and are expected to spawn along with the older fish during the impending spawning season.

The observations from the two populations indicate that the species' reproductive processes require swift-flowing waters over shoal areas for spawning and deep, slow-moving areas for development of the young fish; whereupon, at some point prior to the next spawning season, they return to the shoal areas.

Applying this analysis to the present situation observed in the Little Tennessee River and Watts Bar Reservoir, it explains why recruitment necessary to sustain this population has not occurred in the Little Tennessee River for the past two years and indicates that recruitment of the young fish below Tellico Dam to the river population will not occur naturally in the future due to the physical barrier presented by Tellico Dam. Since (1) those fish now present in the Little Tennessee River are represented virtually entirely by the 1974 year class (2+ age group), which will suffer complete natural mortality following spawning season this year (1977); (2) reproduction from these fish will drift through Tellico Dam to their required nursery area in the deeper waters of Watts Bar Reservoir; and (3) the young fish, once having completed the

nursery period, are unable to return to the river itself, the prognosis must be that the natural Little Tennessee River population will be essentially extirpated before the end of 1977. Conversely, as the young snail darters in the Hiwassee have free access to the swifter waters, and have indeed moved into these areas, we expect that population to continue to prosper.

Data providing the basis for the situation assessment presented in this document, as well as the analysis itself, have been transmitted to the USFWS and TWRA in biweekly progress reports throughout the course of the conservation program. In addition, the situation was discussed in detail during the November 10, 1976, consultation meeting among biologists representing the three agencies. All agreed that TVA's analysis of the Little Tennessee River situation probably described the actual case.

The 16.5-mile stretch of the Little Tennessee River above Tellico Dam does not contain a suitable nursery area critical to the development of post-larval snail darters and, hence, that section of the river is not capable of sustaining a viable, natural population of snail darters. From a biological perspective, Little Tennessee River miles 0.5 to 17 cannot be considered to be the critical habitat of this species.

Additional Habitat

TVA biological crews have surveyed a large number of area streams to find other areas with suitable habitat to establish additional populations of

snail darters. Of the ten candidate sites considered acceptable, the Holston River below Cherokee Dam was selected as the best site in consultation with the Fish and Wilflife Service and the Tennessee Wildlife Resources Agency on September 29, 1976, and was the basis for TVA's November 12, 1976, application for a permit under Section 10 of the Endangered Species Act.

The lower section of the Holston has extensive shoal areas with sand and gravel substrate predominant, and populations of aquatic snails (including *Physa*) are found in this area. While certain water quality parameters are somewhat different from those of the Little Tennessee River (especially Ca and Cl), the differences are not considered critical. Water temperature and siltation compared favorably to those conditions in the Little Tennessee. Several large river species of fish along with three species of darters (also found in the lower Little Tennessee River) are found in this lower section of the Holston River. Overall, this area appears to be capable of satisfying the snail darter's basic biological needs and provides suitable habitat for an additional population to be established.

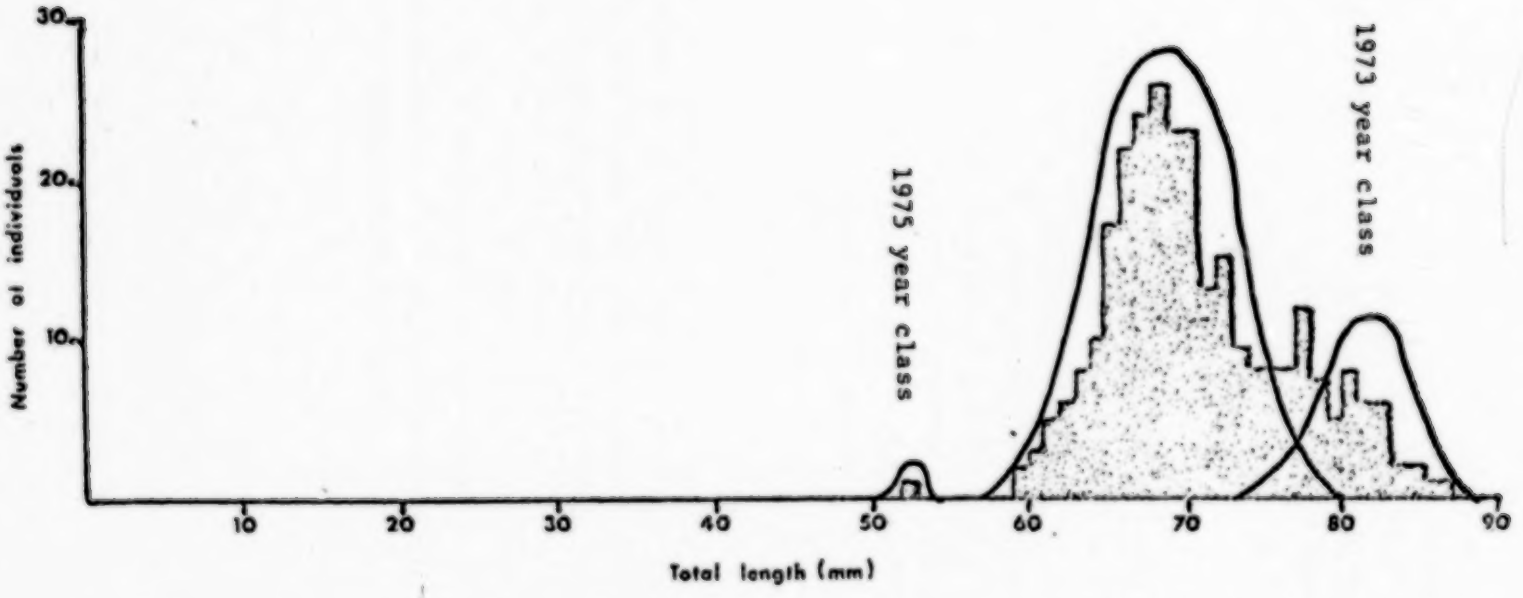

Figure 1 Length frequency of snail darters collected from the Coytee Spring area during October-November-December, 1975 (N=280).

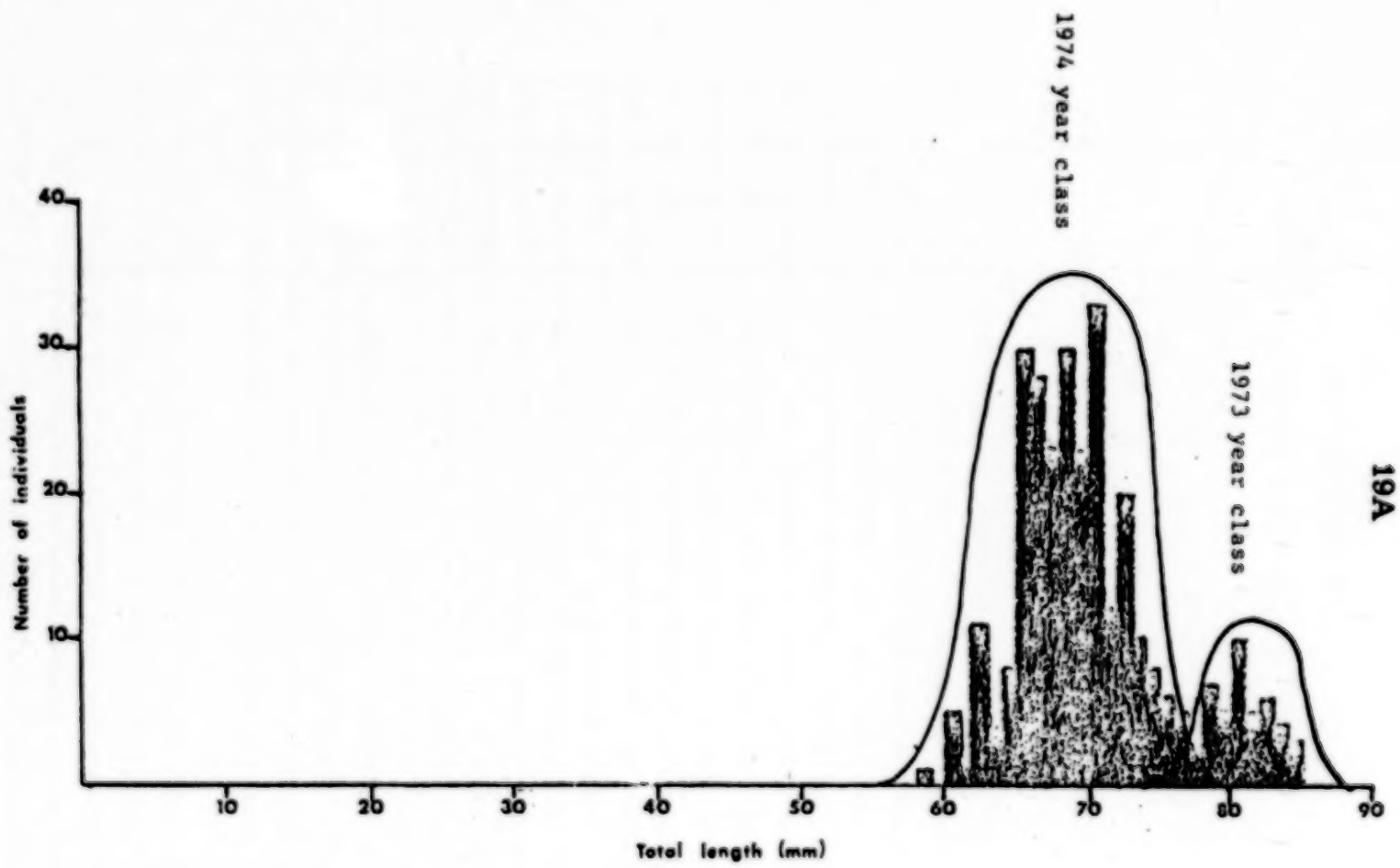

Figure 2 Length frequency of snail darters collected from the Coytee Spring area during February, 1976 (N=302).

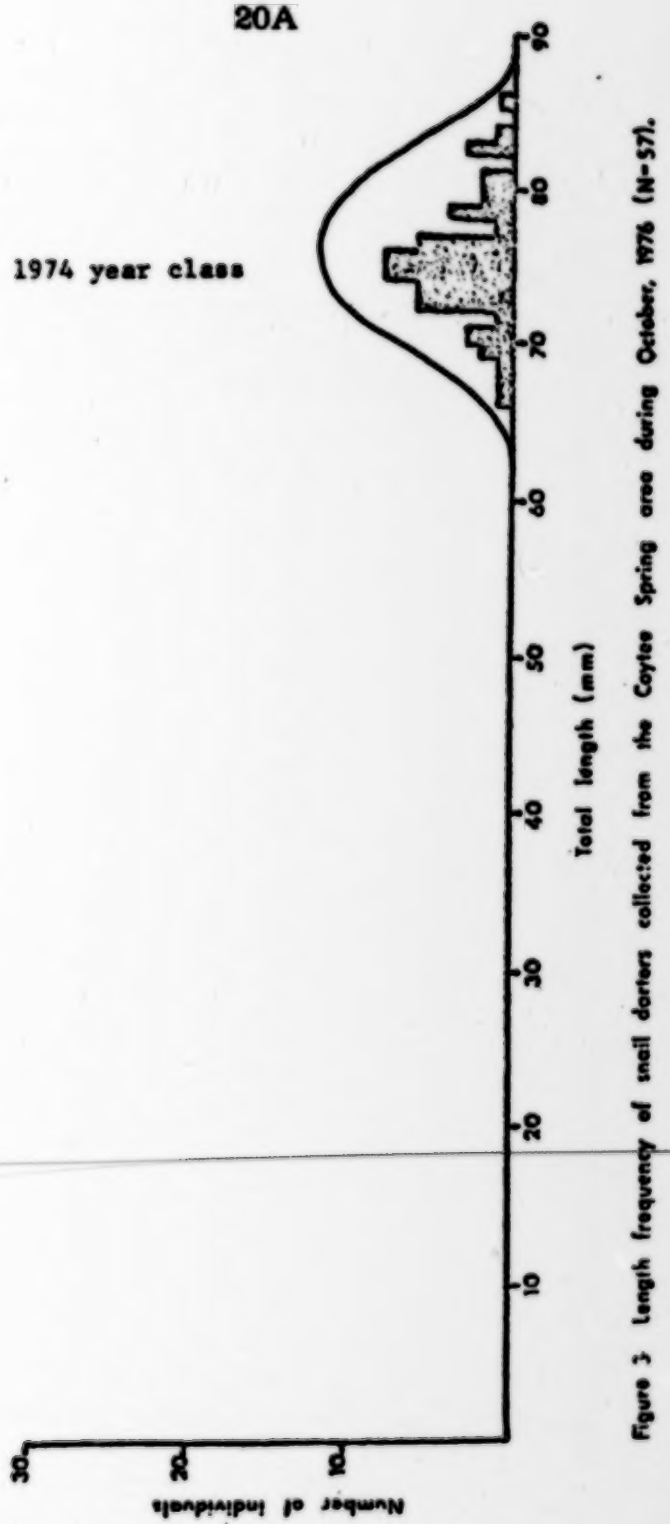

Figure 3. Length frequency of snail darters collected from the Coytee Spring area during October, 1976 (N=57).

APPENDIX III

AFFIDAVIT OF RICHARD B. FITZ

STATE OF TENNESSEE)
)SS
COUNTY OF KNOX)

Richard B. Fitz, being first duly sworn, deposes and says:

I am 37 years of age and reside at 957 West Outer Drive, Oak Ridge, Tennessee. I have been employed by the Tennessee Valley Authority (TVA) since January 1963 as a fisheries biologist in the Division of Forestry, Fisheries, and Wildlife Development, Norris, Tennessee. My general responsibilities include conducting research on the distribution of stream and reservoir fishes; fisheries management, taxonomy, and population assessment; special equipment development; and environmental education. Since July 1975, I have served as project leader for TVA's Snail Darter Conservation Program and I am responsible for the overall planning, execution and documentation required to implement TVA's conservation program as planned. As project leader I supervise and direct a crew of biologists and biological technicians in conducting life history studies of the snail darter, including population analyses, and other program efforts to insure its survival, including transplantation of the snail darter to other rivers.

I graduated from Colorado State University in January 1963 with a Bachelor of Science degree in fisheries science, and I am presently a candidate for a Master of Science degree in water resources development at the University of Tennessee. I have published

four scientific papers on fisheries subjects and authored a number of TVA fisheries publications. I am a member of the American Fisheries Society and the Southeastern Fisheries Council.

The attached report entitled "Population Age Structure and Distribution — Little Tennessee and Hiwassee Rivers," dated February 1977, was prepared under my direction and supervision and is specifically incorporated into this affidavit by reference. The information and conclusions contained in the report are true and correct to the best of my knowledge, information and belief.

/s/ RICHARD B. FITZ
Richard B. Fitz

Sworn to and subscribed before me
the 25 day of February, 1977.
/s/ SHIRLEY W. KERR
Notary Public
My commission expires: 3-8-78

APPENDIX IV

TENNESSEE VALLEY AUTHORITY
Knoxville, Tennessee 37902

December 6, 1977

Allen Hirons, Esq.
Southeastern Legal Foundation, Inc.
1800 Century Boulevard, NE., Suite 950
Atlanta, Georgia 30345

Re: Tennessee Valley Authority v.
Hiram G. Hill, Jr., et al.

Dear Mr. Hirons:

As you requested we are enclosing a copy of TVA's petition to delist the Little Tennessee River as critical habitat for the snail darter, together with supporting documents, which was mailed to the U.S. Fish and Wildlife Service on February 28, 1977. To our knowledge, the petition has not been acted on as yet.

If we can be of further assistance to you, please do not hesitate to call.

Very truly yours,

/s/ CHARLES A. WAGNER, III
Charles A. Wagner III
Associate General Counsel

Enclosures